

DART AEROSPACE LTD	Work Order:	17875
Description: Crosstube assembly. (407 high fwd)	Part Number:	D407-667-105
Drawing: D407-667-145 Rev. A	Qty:	1
Page 1 of 3		

Step	Location	Procedure	By	Date	Qty
1	EXPEDITING	Issue W/O	SM	02/06/28	1
2	EXPEDITING	Photocopy blue file and type labels Attach a copy of PPP D407-667-105	SM	02/06/28	1
3	CNC CELL	Material: Qty Part number Description batch 1 D6010-115 Crosstube B15289	MH	02/07/04	1
4	CNC CELL	Fill tube with sand & install plugs DT???? on both ends as per folio FA???	MH	02/07/04	1
5	CNC CELL	Turn first side as per folio FA ???	MH	02/07/04	1
6	CNC-CELL	Deburr & Inspect for surface damage. Repair damage within limits per D407-667-145	EC	02.07.05	1
7	QC	Inspect Level 2	EC	02.07.05	1
8	QC	Inspect Level 8	EC	02.07.05	1
9	CNC CELL	Turn second side as per folio FA ???	EC	02.07.05	1
10	CNC-CELL	Deburr & Inspect for surface damage. Repair damage within limits per D407-667-145	EC	02.07.05	1
11	QC	Inspect Level 1	EC	02.07.05	1
12	QC	Inspect Level 8	EC	02.07.05	1
13	CNC CELL	Polish entire outside surface of crosstube	EC	02.07.05	1
14	CNC CELL	Remove sand and plugs	EC	02.07.05	1
15	METAL	Scribe part # and batch # using vibrating stylus as per dwg D407-667-145	EC	02.07.05	1
16	FINISHING	Chemical Conversion Coat per QSI 005 4.1 within 24 hours of machining Ensure no sand is in the tube before alodine.	EC	02.07.05	1
17	QC	Inspect Level 5 Check interior for sand residue.	#	02.07.08	1
18	METAL	Bend tube as per dwg D407-667-145 using CNC bender program ????	DN	02/07/08	1
19	QC	Inspect Level 6	#	02/07/08	1
20	METAL	Drill pilot holes in tube as per dwg using drill jig DT ???? & DT????	DN	02/07/08	1

PRELIMINARY ISSUE 02/06/06

Work Order:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Manuf / Design Mgr	Approval QC Inspector

NCR		WORK ORDER NON-CONFORMANCE						
DATE	STEP	Description of NC section A	Corrective Action Section B		Sign & Date	Verification Section C	Approval Design Mgr	Approval QC Inspector
			Intial					

PAR#: _____ Fault Category: _____ DQA: _____ Date: _____

NOTE: Date & initial all entries
H:\Admin-QA\ISO\forms\w\oncb.doc

QA: N/C Closed: _____ Date: _____

DART AEROSPACE LTD	Work Order:	40774 17875
Description: Crosstube assembly. (407 high fwd)	Part Number:	D407-667-105
Drawing: D407-667-145 Rev. A	Qty:	1
Page 2 of 3		

Step	Location	Procedure	By	Date	Qty
21	METAL	Ream hole to finish size in tube as per dwg D407-667-145 using drill jig DT ???? & DT????	SD	01/07/08	1
22	METAL	Deburr & Inspect for surface damage. Repair damage within limits per D407-667-145	SD	01/07/08	1
23	FINISHING	Chemical conversion coat per QSI 005 4.1 within 24 hours of bending and drilling	SD	02/07/08	1
24	QC	Inspect Level 5	SD	02/07/08	1
25	PURCHASING	Liquid Penetrant Inspect per QSI 038 Or Issue P/O: <u>2004856</u> LPI per ASTM 1417 Level 2 Attach copy of NDT results to W/O	IL	02-08-22	1
26	RECEIVING	Inspect for transit damage & attach copy of NDT results to W/O	JR	020828	1
27	QC	Inspect for damage & ensure results are per dwg D407-667-145	SD	02-09-03	1
28	FINISHING	Prime inside and outside per QSI 005 4.2	Jm	02.07.03	1
29	FINISHING	Paint outside with white Imron per QSI 005 4.2	Jm	02.09.04	1
30	QC	Inspect Level 14	SD	02-09-06	1
31	FINISHING	Wrap in plastic bag to protect from scratches	SD	02/09/09	1
32	STORES	Pick: Qty Part number Description batch 2 D2856-400-694 abrasion strip B16042 2 D2891-1 support B17727 4 MS21920-20 clamp M11995	fl	02.09.09	1
33	METAL	Install abrasion strips per QSI 035 Locate strips using DT????	SD	02/09/09	1
34	METAL	Install supports and clamps per D407-667-145. Torque clamps to 80-100 in lb.	SD	02/09/09	1
35	QC	Inspect Level 5	SD	02-09-09	1

PRELIMINARY
ISSUE

Work Order:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Manuf / Design Mgr	Approval QC Inspector

NCR		WORK ORDER NON-CONFORMANCE						
DATE	STEP	Description of NC section A	Corrective Action Section B		Sign & Date	Verification Section C	Approval Design Mgr	Approval QC Inspector
			Intial					

PAR#: _____ Fault Category: _____ DQA: _____ Date: _____

NOTE: Date & initial all entries
H:\Admin-QA\ISO\forms\w\oncB.doc

QA: N/C Closed: _____ Date: _____

DART AEROSPACE LTD	Work Order:	178765
Description: Crosstube assembly. (407 high fwd)	Part Number:	D407-667-105
Drawing: D407-667-145 Rev. A	Qty:	1
Page 3 of 3		

Step	Location	Procedure	By	Date	Qty																
36	STORES	Pick: <table><tr><th>Qty</th><th>Part number</th><th>Description</th><th>batch</th></tr><tr><td>4</td><td>AN5-32A</td><td>bolt</td><td>M5399</td></tr><tr><td>4</td><td>MS21042L5 ✓</td><td>nut (or MS21042-5)</td><td>M5289</td></tr><tr><td>8</td><td>AN960JD516</td><td>washer</td><td>M9749</td></tr></table>	Qty	Part number	Description	batch	4	AN5-32A	bolt	M5399	4	MS21042L5 ✓	nut (or MS21042-5)	M5289	8	AN960JD516	washer	M9749	①	02-09-09	1
Qty	Part number	Description	batch																		
4	AN5-32A	bolt	M5399																		
4	MS21042L5 ✓	nut (or MS21042-5)	M5289																		
8	AN960JD516	washer	M9749																		
37	QC	Inspect Level 4	①	02-09-09	1																
38	STORES	Package per PPP D407-667-105 REV. A ①	①	03-06-12 02-09-10	1																
39	EXPEDITING	Close W/O Inspect level 21 Cost / Part: 1099.07 off 1190.65 02-09-11 ①	①	03-06-12 02-09-11	1																

Rev	Date	Change	Revised By	Approved
A	02.06.06	Preliminary issue	NG	

Pre-Approved.
C.E. 2/6/7

**PRELIMINARY
ISSUE**

02/06/06

97"

Work Order:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Manuf / Design Mgr	Approval QC Inspector

NCR		WORK ORDER NON-CONFORMANCE						
DATE	STEP	Description of NC section A	Corrective Action Section B		Sign & Date	Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial					

PAR#: _____ Fault Category: _____ DQA: _____ Date: _____

NOTE: Date & initial all entries
H:\Admin-QA\ISO\forms\w\oncB.doc

QA: N/C Closed: _____ Date: _____

NO. 178705

Part Number

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[illegible]

[illegible]

11/11/2016

D2729-1

D2729-3

Date:

Supplier Code: _____ Sheet ____ of _____

PART NO.: D407-667-105

PHY. CHANGE: N/A

DESCRIPTION: CROSSTUBE (407)

DRAWING CHANGE: N/A

MANUFACTURING DATE: 02/07/04

UNICORP E.O.'S: N/A

BATCH NO.: 17875

SERIAL NO.: N/A

PURCHASE ORDER NO.: 2/11

QUANTITY ACCT: 10/25 REJ.

DATA SHEET NO: 2/12

□ PERIODIC CONFORMITY

□ FINAL INSPECTION

H:Adinin-qaliso/formsfirst article inspectionA

Rev. B

Measured by: M. Horner

Audited by:

Approved by: _____

Supplier Code: _____ Sheet ____ of ____

PHY. CHANGE: N/A

DRAWING CHANGE: N/A

UNICORP E.O.'S: N/A

PURCHASE ORDER NO. 6219

DATA SHEET NO. 13/2

79

H:\admin\galisoforms\first article inspection\A

Audited by: FR

Approved by:

RELEASED
02.06.04

DESIGN CP	DRAWN BY CP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED [Signature]	APPROVED [Signature]	DRAWING NO. D407-667-145	REV. A SHEET 1 OF 3
DATE 02.05.08		TITLE CROSSTUBE ASS'Y (407 HIGH FWD)	SCALE NTS
A	02.05.08	NEW ISSUE	

Qty	Part Number	Description
X	D407-667-145	CROSSTUBE ASSEMBLY (407 HIGH FWD)
1	D6010-115	CROSSTUBE
2	D2856-400-694	ABRASION STRIP
2	D2891-1	SUPPORT
4	MS21920-20	CLAMP

GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6010-115
FINISHED LENGTH = 113.20 ± 0.020
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2856-400-694 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D2891-1 SUPPORT, PER QSI 035.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) SEAL EDGES OF SUPPORTS AND ABRASION STRIP USING SIKAFLEX-241/291 SEALANT (OPTIONAL).
- 12) TORQUE CLAMPS 80 TO 100 IN-LB.

WORK ORDER
NO. 17875

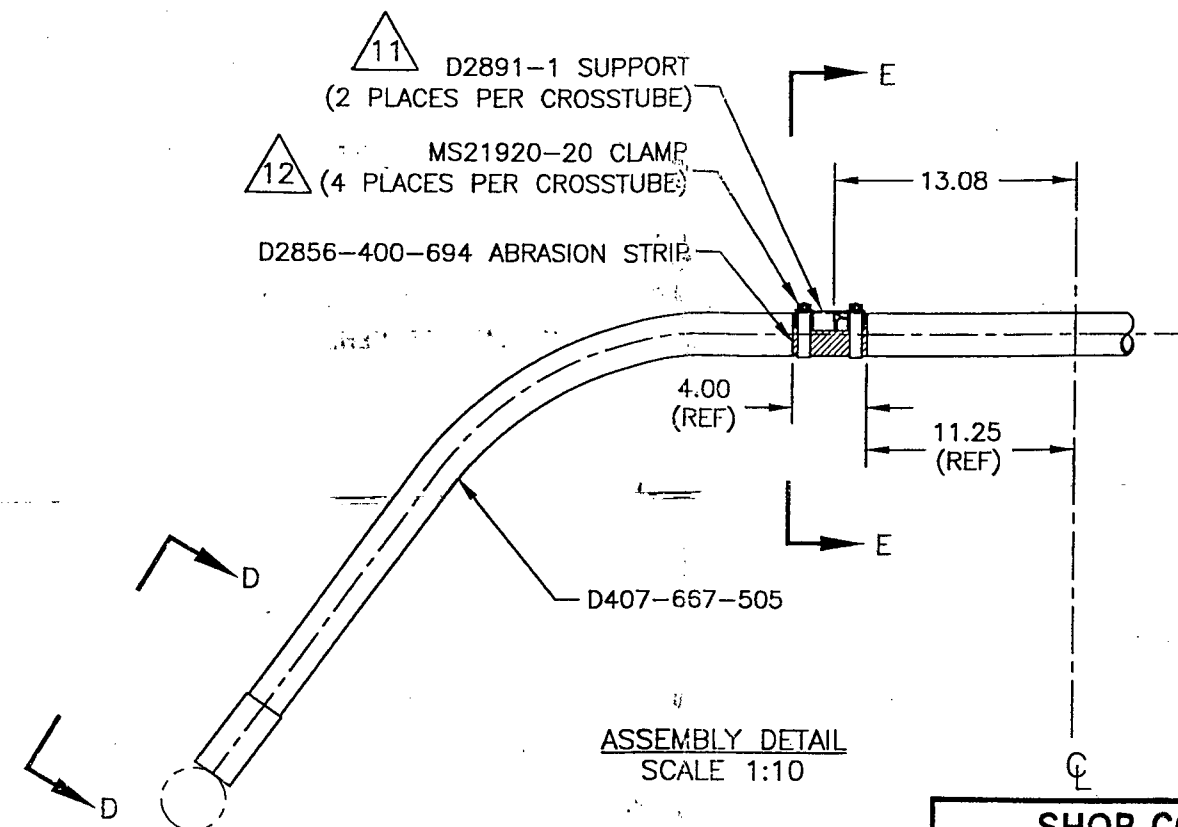
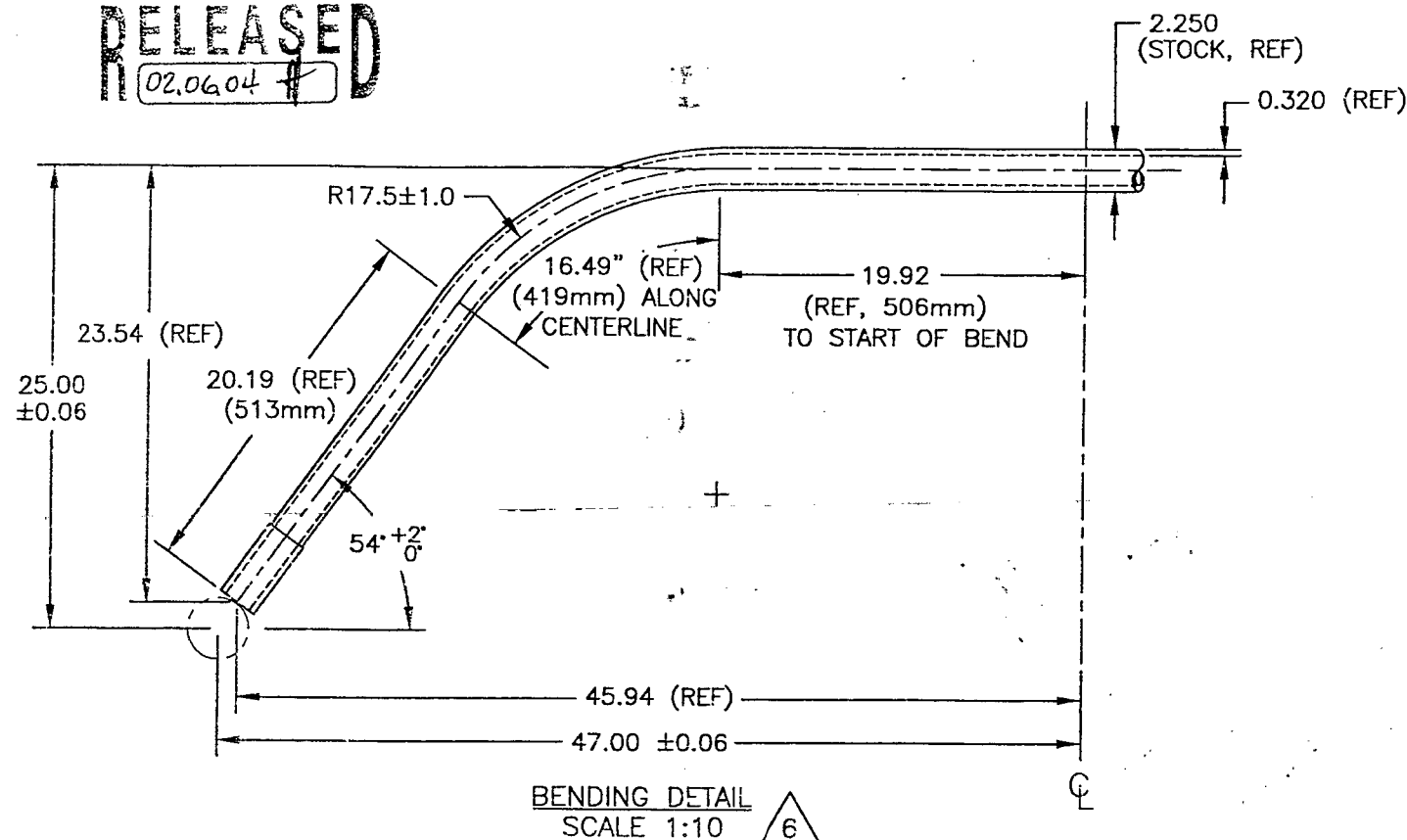
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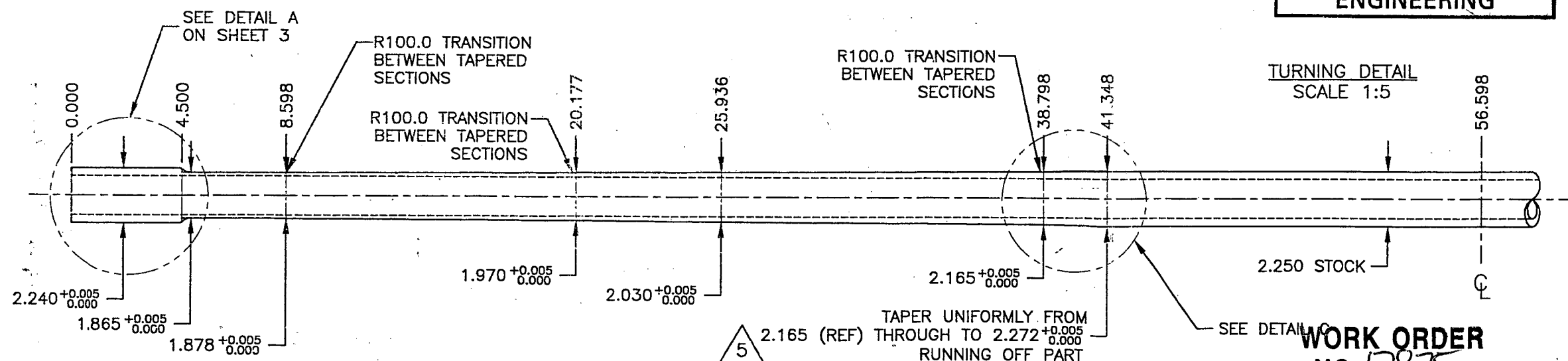
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02.06.04

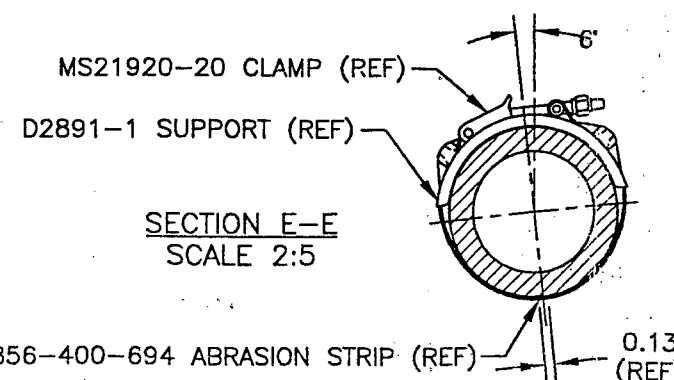
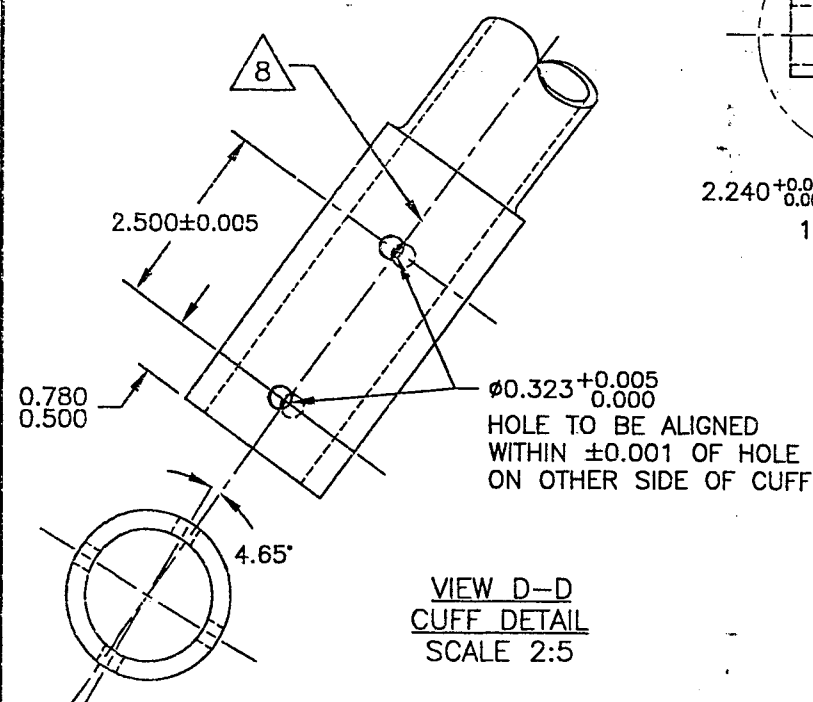


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WORK ORDER
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A	02.05.08	NEW ISSUE
DESIGN	CP	DRAWN BY CP
CHECKED	CP	APPROVED
DATE	02.05.08	TITLE
		CROSSTUBE ASS'Y (407 HIGH FWD)
		1:10

DART

DART AEROSPACE LTD.
HAWKESBURY, ONTARIO, CANADA

DRAWING NO.
D407-667-145

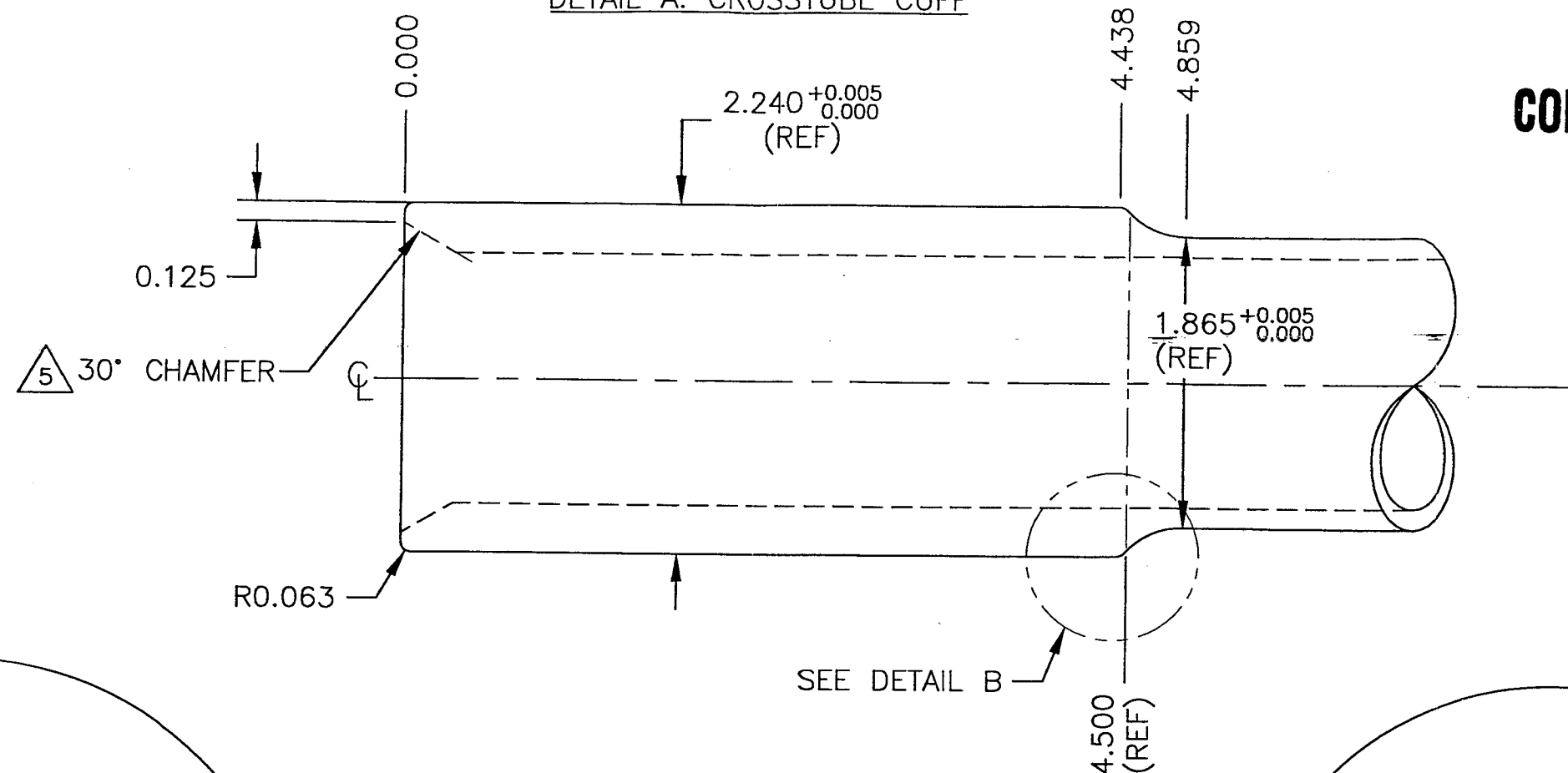
REV. A
SHEET 2 OF 3

TITLE
CROSSTUBE ASS'Y (407 HIGH FWD)

SCALE
1:10

RELEASED
02.06.04

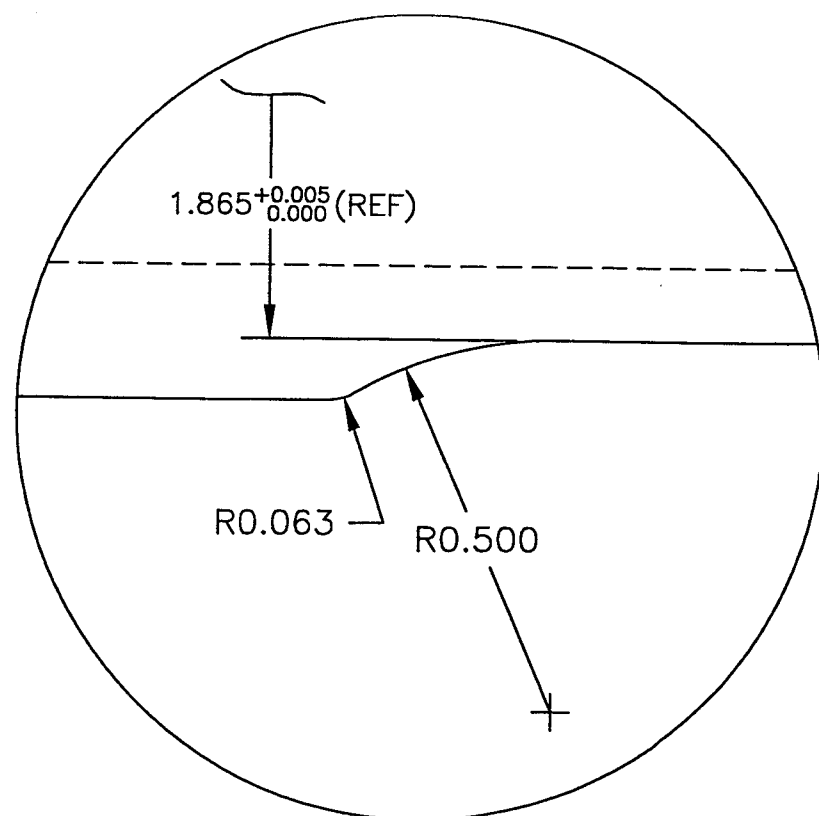
DETAIL A: CROSSTUBE CUFF



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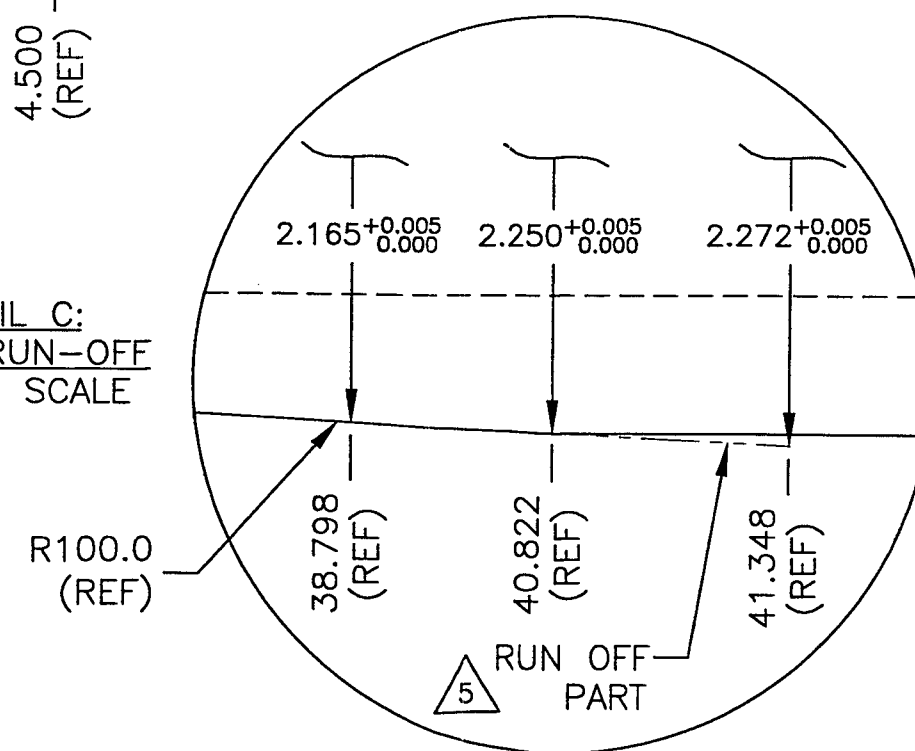
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WORK ORDER
NO. 17875



DETAIL B: CUFF
TRANSITION
SCALE 4:1

DETAIL C:
TAPER RUN-OFF
NOT TO SCALE



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DESIGN

CP

DRAWN BY

CP

DART

DART AEROSPACE LTD.
HAWKESBURY, ONTARIO, CANADA

CHECKED

CP

APPROVED

CP

DRAWING NO.
D407-667-145

REV. A

SHEET 3 OF 3

DATE

02.05.08

TITLE

CROSSTUBE ASS'Y (407 HIGH FWD)

SCALE

1:1

Job Costing Report

Dart Aerospace Ltd.
Hawkesbury

Jun 27, 2002
09:29 am

Work Order No : 0017875
Project Name : *D407-667-105
Project For : wk 27
Work Order Type : Main
Main WO Number :
House Part Number : *D407-667-105
Description : FWD Crosstube
Manufactured : Yes
Amount Req'd : 1
Amount Done : 0
Start Date :
Est Finish Date : 07-05-02
Act Finish Date :
Drawings Req'd : No
Ok for Approval :
Approval Rec'd :

Department Code :
Burden Flags : NNNNNNN
WO Status : Open
Invoice State : Not Invoiced
Invoice Date :
Invoice Number :
Invoice Amount : 0.00
Order Entry No :
OE Value : 0.00
Est Margin : 0.000%
Actual Margin : 0.000%
\$0 Posted to Finished Goods

	Estimated	Actual	Var. %	Posted	To Post
Material Cost	0.00	0.00	0.00	0.00	0.00
Engineering Hours	0.00	0.00	0.00		
Engineering Cost	0.00	0.00	0.00	0.00	0.00
Production Hours	0.00	0.00	0.00		
Production Cost	0.00	0.00	0.00	0.00	0.00
Testing Hours	0.00	0.00	0.00		
Testing Cost	0.00	0.00	0.00	0.00	0.00
OverHead Hours	0.00	0.00	0.00		
OverHead Cost	0.00	0.00	0.00	0.00	0.00
SubContract Hours	0.00	0.00	0.00		
SubContract	0.00	0.00	0.00	0.00	0.00
Misc. Hours	0.00	0.00	0.00		
Misc.	0.00	0.00	0.00	0.00	0.00
Burden	0.00	0.00	0.00		
Total Cost	0.00	0.00	0.00		
Margin	0.000	0.000			
Selling Cost	0.00	0.00			

	Estimated	Actual
Labour Hrs/Amount Done	0.00	0.00
Profits/(Loss)	0.00	0.00



HeathAir

INTERNATIONAL (1991) INC.

681 Ave. Lepine, Dorval, Québec H9P 1G3
Tél.: (514) 636-1000 • Fax: (514) 636-0031

W.O. N° 24426

A.M.O. Number: 46/90

NON-DESTRUCTIVE TESTING REPORT

AIRCRAFT / COMPONENT INFORMATION

REGISTRATION:

MODEL/TYPE:

SERIAL NUMBER:

TOTAL HR/LDG:

OPERATED BY:

BASED AT:

INSPECTION REQUIREMENTS

Perform NDT on 05 cross tubes as per ASTM 1417, level 2.
01. 01. P/N D208-667-201 P16125
02. 01. P/N 0112-664-201 B14497
03. 01. P/N 1112-664-201 B16477
04. 01. P/N 0112-664-201 B15478, 05. 01. P/N 0407-667-017875



RADIOGRAPHY



ULTRASONIC



PENETRANT



MAGNETIC PARTICLE



EDDY CURRENT

INSPECTION REPORT

Water penetrant fluorescent inspection performed on 05 cross tubes as per customer's requirements.
No evidence of cracking found.

THE MAINTENANCE DESCRIBED ABOVE HAS BEEN PERFORMED IN ACCORDANCE WITH
THE APPLICABLE STANDARDS OF AIRWORTHINESS

INSPECTED BY: 

DATE

27 AUG 91

INSPECTION
STAMP(S)



CUSTOMER INFORMATION

CUSTOMER:

3000 Aerospace Ltd

P.O. NUMBER

2004856

ADDRESS:

CONTACT NAME:

LABOUR	@	\$
MATERIALS	@	
TRAVEL EXPENSES	@	GST
HOTEL EXPENSES	@	PST

INVOICE NO.

TOTAL \$

WHITE COPY - INSPECTION FILE • YELLOW COPY - CUSTOMER • PINK COPY - ACCOUNTANT